

120-27

MGG09005052

LABORATORY ITEM 459

MGG09005052

A SUMMARY OF BIOCHEMICAL OXYGEN DEMAND, CHEMICAL OXYGEN DEMAND, AND MASS PHYSICAL PROPERTIES ANALYSES OF TEN CORES FROM SAN DIEGO HARBOR. NAVY DIVERS. AUGUST - SEPTEMBER 1973.

BOD and COD Analysis by: J. P. Sullivan
J. C. Bowman

Mass Physical Properties Analysis by: C. M. Ross

Prepared for Code 6110

NOVEMBER 1973

Geological Laboratory
Nearshore Surveys Division
Oceanographic Surveys Department

U. S. NAVAL OCEANOGRAPHIC OFFICE
WASHINGTON, D. C. 20373

EXPLANATION OF DATA PAGES
CORE ANALYSIS SUMMARY SHEET
Engineering Properties
NAVOCEANO (EXP) 3167/18B (Rev. 1-63)

Results of engineering properties, core analysis performed by the U. S. Naval Oceanographic Office Geological Laboratory are recorded on Core Analysis Summary Sheet Engineering Properties.

The following is a description of the terms employed on the Core Analysis Summary Sheet:

1. Cruise Number. A number assigned to each cruise for identification purposes.
2. Latitude. Expressed in degrees, minutes, and seconds.
3. Longitude. Expressed in degrees, minutes, and seconds.
4. Sample Number. A consecutive number, commencing with 1, applied to each core taken successively throughout the cruise.
5. Date Taken. Day (GMT), month, and year.
6. Water Depth (m). The uncorrected sonic sounding recorded in meters.
7. Type Corer. Identified by the name of device employed.
8. Core Length (cm). Recorded in centimeters as observed in the laboratory.
9. Core Penetration (cm). Recorded in centimeters as observed in the field.
10. Subsample Depth in Core (cm). Interval of subsample as measured in centimeters from the top of the core.
11. Wet Unit Weight (g/cm^3). The weight (solids plus water) per unit volume of the sediment mass.
12. Specific Gravity of Solids. The ratio of weight in air of a given volume of a sediment at 20°C to the weight in air of an equal volume of distilled water at 20°C.
13. Water Content (% dry weight). The ratio, in percent, of the weight of water in a given mass of the sediment sample to the weight of the solid particles.
14. Void Ratio. The ratio of the volume of void spaces to the volume of solid particles in the sediment sample as computed from Wet Unit Weight, Specific Gravity of Solids, and Water Content.

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15. Saturated Void Ratio. The Void Ratio at 100 percent saturation as computed from Water Content and Specific Gravity of Solids.

$$\text{Saturated Void Ratio} = \frac{\text{Water Content} \times \text{Specific Gravity of Solids}}{100}$$

16. Porosity (%). The ratio, usually expressed as a percentage, of the volume of voids of a sediment mass to the total volume of the sediment mass.

17. Liquid Limit. Water Content, in percent, at which a pat of sediment cut by a groove of standard dimension will flow together for a distance of 1/2 inch under the impact of 25 blows in a standard liquid limit apparatus.

18. Plastic Limit. Water Content, in percent, at which a sediment will just begin to crumble when rolled into a thread approximately 1/8 inch in diameter.

19. Plasticity Index. The numerical difference between the Liquid Limit and Plastic Limit of the sediment mass.

20. Liquidity Index. The ratio, expressed in percentage, of (1) the natural water content of the sediment sample minus its Plastic Limit to (2) its Plasticity Index.

21. Compression Index. The slope of the linear portion of the Pressure-Void Ratio curve on a semi-log plot.

22. Compressive Strength. The load per unit area required to shear an unconfined, natural or remolded, sediment mass.

23. Cohesion. The shearing strength per unit area under zero externally applied load.

24. Sensitivity. The ratio of the natural to the remolded strength. It is a measure of the loss of strength due to remolding the sediment mass.

25. Angle of Internal Friction ($^{\circ}$). The angle between the abscissa and the tangent of the curve representing the relationship of "shearing resistance" to "normal stress" acting within a sediment mass.

26. Activity. The ratio of the Plasticity Index to the clay fraction percentage (<.002mm) of the sediment mass.

27. Modulus of Elasticity. The ratio of stress to strain of the sediment mass.

28. Slump (%). The ratio, in percent, of the amount of height change immediately before the compressive strength test to the original height of a cylinder of sediment.

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Lab Item 459 Chemical Oxygen Demand

| Core No. | Run one | Run two | Average | Standard Deviation | Coefficient of Variation % | Remarks |
|-------------------|---|---------|---------|--------------------|----------------------------|---------|
| Interval (inches) | mg/kg | mg/kg | mg/kg | | | |
| S.D. #1 | | | | | | |
| 0-12 | 63,405 | 56,800 | 60,102 | 4,670 | 7.77 | |
| 12-32 | 40,344 | 43,003 | 41,674 | 1,880 | 4.51 | |
| 32-51 | No Sample Available for laboratory Analysis | | | | | |
| S.D. #2 | | | | | | |
| 0-12 | 56,906 | 56,032 | 56,469 | 618.0 | 1.09 | |
| 12-43 | 37,133 | 38,280 | 37,706 | 811.1 | 2.15 | |
| 43-75 | 5,605 | 6,666 | 6,136 | 750.2 | 12.23 | |
| S.D. #3 | | | | | | |
| 0-12 | 50,417 | 49,696 | 50,056 | 509.8 | 1.02 | |
| 12-39 | 49,248 | 51,866 | 50,557 | 1,851 | 3.66 | |
| 39-67 | Sample titration exceeds "blank" titration | | | | | |
| S.D. #4 | | | | | | |
| 0-12 | 47,788 | 53,406 | 50,597 | 3,972 | 7.85 | |
| 12-34.5 | 16,612 | 19,033 | 17,822 | 1,712 | 9.61 | |
| S.D. #5 | | | | | | |
| 0-12 | 30,078 | 27,832 | 28,955 | 1,588 | 4.90 | |
| 12-25 | 31,627 | 33,136 | 32,382 | 1,067 | 3.30 | |
| 25-39 | 18,053 | 22,452 | 20,252 | 3,111 | 15.36 | |
| S.D. #6 | | | | | | |
| 0-12 | 30,560 | 32,861 | 31,710 | 1,627 | 5.13 | |
| 12-36 | 15,321 | 12,756 | 14,038 | 1,814 | 12.92 | |
| 36-59 | 3,397 | 4,460 | 3,928 | 751.7 | 19.14 | |
| S.D. #7 | | | | | | |
| 0-12 | 29,516 | 29,700 | 29,608 | 130.1 | 0.44 | |
| 12-25 | 26,346 | 23,808 | 25,077 | 1,795 | 7.16 | |
| 25-39 | 11,719 | 20,010 | 15,864 | 5,863 | 36.96 | |
| S.D. #8 | | | | | | |
| 0-12 | 44,712 | 43,219 | 43,966 | 1,056 | 2.40 | |
| 12-47 | 9,233 | 14,936 | 12,084 | 4,033 | 33.37 | |
| 47-82 | 2,786 | 2,772 | 2,779 | 9.90 | 0.36 | |

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Lab Item 4S9 Chemical Oxygen Demand (Cont'd)

MGG 09005052

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LAbITE 459

B.O.D. Analysis (San Diego)

7

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

ANALYZED BY C.M. Ross
DATE 5 Nov 1973

120-27

| | | | | | | | |
|---|----------------------|---------------------------|--------------------|--------------------|-----------------|---------------------------|-------|
| 1. CRUISE NO. | SAN DIEGO | II | 4. SAMPLE NO. | BS 1 | 7. TYPE | CORER | DIVER |
| 2. LATITUDE | 32 ° 40' | 30 N | 5. DATE TAKEN | (Day, month, year) | AUG - SEPT 1973 | 8. CORE LENGTH (cm) | 129.5 |
| 3. LONGITUDE | 117 ° 7' | W | 6. WATER DEPTH (m) | | | 9. CORER PENETRATION (cm) | |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD 1 | | | | | | |
| 11. WET UNIT WEIGHT (g/cm^3) | * | 1.97 | | | | | |
| 12. SPECIFIC GRAVITY OF SOLIDS | 2.77 | | | | | | |
| 13. WATER CONTENT (% dry weight) | 29.56 | | | | | | |
| 14. VOID RATIO | * | 0.820 | | | | | |
| 15. SATURATED VOID RATIO | * | 0.820 | | | | | |
| 16. POROSITY (%) | * | 46.05 | | | | | |
| 17. LIQUID LIMIT | | | | | | | |
| 18. PLASTIC LIMIT | | | | | | | |
| 19. PLASTICITY INDEX | | | | | | | |
| 20. LIQUIDITY INDEX | | | | | | | |
| 21. COMPRESSION INDEX FROM LL | | | | | | | |
| 22. COMPRESSIVE STRENGTH NATURAL | (kg/cm^2) | | | | | | |
| REMOULD | (kg/cm^2) | | | | | | |
| 23. COHESION NATURAL | (kg/cm^2) | | | | | | |
| REMOULD | (kg/cm^2) | | | | | | |
| 24. SENSITIVITY | | | | | | | |
| 25. ANGLE OF INTERNAL FRICTION (°) | | | | | | | |
| 26. ACTIVITY | | | | | | | |
| 27. MODULUS OF ELASTICITY | | | | | | | |
| 28. SLUMP (%) | | | | | | | |
| 29. REMARKS * | CALCULATED | ASSUMING 100% SATURATION. | | | | | |

MGG 09005052

PRNC-NAVOCEANO-3167/18 B (4-63)

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

ANALYZED BY C.M. RossDATE 5 NOV 1973120-27

| | | | | |
|--|---------------------------|---|----------------------------|----------------------------------|
| 1. CRUISE NO. <u>SAN DIEGO II</u> | 4. SAMPLE NO. <u>B5 2</u> | 5. DATE TAKEN (Day, month, year) <u>AUG-SEPT 1973</u> | 7. TYPE CORER <u>DIVER</u> | 8. CORE LENGTH (cm) <u>/90.5</u> |
| 2. LATITUDE <u>32° 40' 30" N</u> | " | 6. WATER DEPTH (m) | 9. CORER PENETRATION (cm) | |
| 3. LONGITUDE <u>117° 07' 00" W</u> | " | | | |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD 2-1 | SD 2-2 | | |
| 11. WET UNIT WEIGHT (g/cm^3) | X | 2.10 | 1.46 | |
| 12. SPECIFIC GRAVITY OF SOLIDS | 2.74 | 2.77 | | |
| 13. WATER CONTENT (%) dry weight) | 21.32 | 103.02 | | |
| 14. VOID RATIO | * | 0.583 | 2.851 | |
| 15. SATURATED VOID RATIO | * | 0.583 | 2.851 | |
| 16. POROSITY (%) | * | 36.9 | 74.0 | |
| 17. LIQUID LIMIT | | | | |
| 18. PLASTIC LIMIT | | | | |
| 19. PLASTICITY INDEX | | | | |
| 20. LIQUIDITY INDEX | | | | |
| 21. COMPRESSION INDEX FROM LL | | | | |
| 22. COMPRESSIVE STRENGTH NATURAL REMOULD | (g/cm^2) | (g/cm^2) | | |
| 23. COHESION NATURAL REMOULD | (g/cm^2) | (g/cm^2) | | |
| 24. SENSITIVITY | | | | |
| 25. ANGLE OF INTERNAL FRICTION ($^\circ$) | | | | |
| 26. ACTIVITY | | | | |
| 27. MODULUS OF ELASTICITY | | | | |
| 28. SLUMP (in) | | | | |
| 29. REMARKS * CALCULATED ASSUMING 100% SATURATION. | | | | |

ITEM 459

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

ANALYZED BY C. M. RossDATE 5 NOV 1973

120-27

| 1. CRUISE NO. | 2. LATITUDE | 3. LONGITUDE | 4. SAMPLE NO. | 5. DATE TAKEN (Day, month, year) | 6. WATER DEPTH (m) | 7. TYPE CORER | 8. CORE LENGTH (cm) | 9. CORER PENETRATION (cm) |
|--|-----------------------|-------------------------|----------------------|--|--------------------|---------------------|---------------------------|---------------------------|
| 1. CRUISE NO. SAN DIEGO II | 2. LATITUDE 32° 40' S | 3. LONGITUDE 117° 07' W | 4. SAMPLE NO. BS - 3 | 5. DATE TAKEN (Day, month, year) AUG - SEPT 1973 | 6. WATER DEPTH (m) | 7. TYPE CORER DIVER | 8. CORE LENGTH (cm) 170.2 | 9. CORER PENETRATION (cm) |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD 3-1 | SD 3-2 | | | | | | |
| 11. WET UNIT WEIGHT (g/cm^3) | * | 2.03 | 1.96 | | | | | |
| 12. SPECIFIC GRAVITY OF SOLIDS | | 2.76 | 2.67 | | | | | |
| 13. WATER CONTENT (%) dry weight | | 25.51 | 27.64 | | | | | |
| 14. VOID RATIO | * | 0.703 | 0.738 | | | | | |
| 15. SATURATED VOID RATIO | * | 0.703 | 0.738 | | | | | |
| 16. POROSITY (%) | * | 41.3 | 42.5 | | | | | |
| 17. LIQUID LIMIT | | | | | | | | |
| 18. PLASTIC LIMIT | | | | | | | | |
| 19. PLASTICITY INDEX | | | | | | | | |
| 20. LIQUIDITY INDEX | | | | | | | | |
| 21. COMPRESSION INDEX FROM LL | | | | | | | | |
| 22. COMPRESSIVE STRENGTH NATURAL REMOULD (kg/cm^2) | | | | | | | | |
| 23. COHESION NATURAL REMOULD (kg/cm^2) | | | | | | | | |
| 24. SENSITIVITY | | | | | | | | |
| 25. ANGLE OF INTERNAL FRICTION ($^\circ$) | | | | | | | | |
| 26. ACTIVITY | | | | | | | | |
| 27. MODULUS OF ELASTICITY | | | | | | | | |
| 28. SLUMP (%) | | | | | | | | |
| 29. REMARKS * CALCULATED ASSUMING 100% SATURATION. | | | | | | | | |

PRNC-NAVOCEANO-3167/18 B (4-63)

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

120-27

ANALYZED BY C.M. ROSSDATE 5 NOV 1973

| 1. CRUISE NO. | 2. LATITUDE | 3. LONGITUDE | 4. SAMPLE NO. | 5. DATE TAKEN (Day, month, year) | 6. WATER DEPTH (m) | 7. TYPE CORER | 8. CORE LENGTH (cm) | 9. CORER PENETRATION (cm) |
|--|---------------------|--------------------------------------|---------------------|----------------------------------|--------------------|---------------|---------------------|---------------------------|
| I. SAN DIEGO II | 32° 40' N | 30° W | BS-4 | AUG - SEPT 1973 | " | DIVER | BS.9 | |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD 4 | | | | | | | |
| 11. WET UNIT WEIGHT (g/cm^3) | * | 2.01 | | | | | | |
| 12. SPECIFIC GRAVITY OF SOLIDS | | 2.77 | | | | | | |
| 13. WATER CONTENT (% dry weight) | | 27.18 | | | | | | |
| 14. VOID RATIO | * | 0.752 | | | | | | |
| 15. SATURATED VOID RATIO | * | 0.752 | | | | | | |
| 16. POROSITY (%) | * | 42.9 | | | | | | |
| 17. LIQUID LIMIT | | | | | | | | |
| 18. PLASTIC LIMIT | | | | | | | | |
| 19. PLASTICITY INDEX | | | | | | | | |
| 20. LIQUIDITY INDEX | | | | | | | | |
| 21. COMPRESSION INDEX FROM LL | | | | | | | | |
| 22. COMPRESSIVE STRENGTH: NATURAL REMOULD | (g/cm^2) | (g/cm^2) | | | | | | |
| 23. COHESION | NATURAL REMOULD | (g/cm^2) | (g/cm^2) | | | | | |
| 24. SENSITIVITY | | | | | | | | |
| 25. ANGLE OF INTERNAL FRICTION ($^\circ$) | | | | | | | | |
| 26. ACTIVITY | | | | | | | | |
| 27. MODULUS OF ELASTICITY | | | | | | | | |
| 28. SLUMP (") | | | | | | | | |
| 29. REMARKS | * | CALCULATED ASSUMING 100% SATURATION. | | | | | | |

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CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

ANALYZED BY C. M. Ross

DATE 5 NOV 1973

120-27

| 1. CRUISE NO. | 2. LATITUDE | 3. LONGITUDE | 4. SAMPLE NO. | 5. DATE TAKEN (Date, month, year) | 6. WATER DEPTH (m) | 7. TYPE CORER | 8. CORE LENGTH (cm) | 9. CORER PENETRATION (cm) | 10. SUBSAMPLE DEPTH IN CORE (cm) | 11. WET UNIT WEIGHT (g/cm ³) | 12. SPECIFIC GRAVITY OF SOLIDS | 13. WATER CONTENT (% dry weight) | 14. VOID RATIO | 15. SATURATED VOID RATIO | 16. POROSITY (%) | 17. LIQUID LIMIT | 18. PLASTIC LIMIT | 19. PLASTICITY INDEX | 20. LIQUIDITY INDEX | 21. COMPRESSION INDEX FROM LL | 22. COMPRESSIVE STRENGTH NATURAL (g/cm ²) REMOULD (g/cm ²) | 23. COHESION NATURAL (g/cm ²) REMOULD (g/cm ²) | 24. SENSITIVITY | 25. ANGLE OF INTERNAL FRICTION (°) | 26. ACTIVITY | 27. MODULUS OF ELASTICITY | 28. SLUMP (") | 29. REMARKS * CALCULATED ASSUMING 100 % SATURATION. |
|----------------------------|----------------------------|---------------------------|--------------------|---|--------------------|---------------|---------------------|---------------------------|----------------------------------|--|--------------------------------|----------------------------------|----------------|--------------------------|------------------|------------------|-------------------|----------------------|---------------------|-------------------------------|---|---|-----------------|------------------------------------|--------------|---------------------------|---------------|---|
| 1. CRUISE NO. SAN DIEGO II | 2. LATITUDE 32 ° 40 ' 30 N | 3. LONGITUDE 117 ° 07 ' W | 4. SAMPLE NO. BS 5 | 5. DATE TAKEN (Date, month, year) AUG-SEPT 1973 | 6. WATER DEPTH (m) | 7. TYPE CORER | 8. CORE LENGTH (cm) | 9. CORER PENETRATION (cm) | 10. SUBSAMPLE DEPTH IN CORE (cm) | 11. WET UNIT WEIGHT (g/cm ³) | 12. SPECIFIC GRAVITY OF SOLIDS | 13. WATER CONTENT (% dry weight) | 14. VOID RATIO | 15. SATURATED VOID RATIO | 16. POROSITY (%) | 17. LIQUID LIMIT | 18. PLASTIC LIMIT | 19. PLASTICITY INDEX | 20. LIQUIDITY INDEX | 21. COMPRESSION INDEX FROM LL | 22. COMPRESSIVE STRENGTH NATURAL (g/cm ²) REMOULD (g/cm ²) | 23. COHESION NATURAL (g/cm ²) REMOULD (g/cm ²) | 24. SENSITIVITY | 25. ANGLE OF INTERNAL FRICTION (°) | 26. ACTIVITY | 27. MODULUS OF ELASTICITY | 28. SLUMP (") | 29. REMARKS * CALCULATED ASSUMING 100 % SATURATION. |
| | | | | | " | | | | | * | 2.74 | 29.57 | * | 0.809 | * | 44.7 | | | | | | | | | | | | |
| | | | | | " | | | | | * | 1.96 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

120-37

ANALYZED BY C. M. Ross

DATE 5 NOV 1973

| | | | | | |
|------------------------------------|--------------------------------------|----------------------------------|----------------|---------------------------|-------|
| 1. CRUISE NO. | SAN DIEGO II | 4. SAMPLE NO. | BS 6 | 7. TYPE CORER | DIVER |
| 2. LATITUDE | 32° 40' 30" N | 5. DATE TAKEN (Day, month, year) | AUG -SEPT 1973 | 8. CORE LENGTH (cm) | 149.9 |
| 3. LONGITUDE | 117° 07' W | 6. WATER DEPTH (m) | " | 9. CORER PENETRATION (cm) | " |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD 6 | | | | |
| 11. WET UNIT WEIGHT (g/cm³) | * | 2.08 | | | |
| 12. SPECIFIC GRAVITY OF SOLIDS | | 2.68 | | | |
| 13. WATER CONTENT (% dry weight) | | 20.90 | | | |
| 14. VOID RATIO | * | 0.560 | | | |
| 15. SATURATED VOID RATIO | * | 0.560 | | | |
| 16. POROSITY (%) | * | 35.9 | | | |
| 17. LIQUID LIMIT | | | | | |
| 18. PLASTIC LIMIT | | | | | |
| 19. PLASTICITY INDEX | | | | | |
| 20. LIQUIDITY INDEX | | | | | |
| 21. COMPRESSION INDEX FROM LL | | | | | |
| 22. COMPRESSIVE STRENGTH NATURAL | (g/cm²) | | | | |
| | REMOULD | (g/cm²) | | | |
| 23. COHESION | NATURAL | (g/cm²) | | | |
| | REMOULD | (g/cm²) | | | |
| 24. SENSITIVITY | | | | | |
| 25. ANGLE OF INTERNAL FRICTION (°) | | | | | |
| 26. ACTIVITY | | | | | |
| 27. MODULUS OF ELASTICITY | | | | | |
| 28. SLUMP (in) | | | | | |
| 29. REMARKS * | CALCULATED ASSUMING 100% SATURATION. | | | | |

ITEM 459

PRNC-NAVOCANO-3167/18 B (4-63)

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

120-27

ANALYZED BY C. M. RossDATE 5 Nov 1973

| | | |
|--|---|---------------------------------|
| 1. CRUISE NO. <u>SAN DIEGO II</u> | 4. SAMPLE NO. <u>BS - 7</u> | 7. TYPE CORER <u>DIVER</u> |
| 2. LATITUDE <u>32° 40' N</u> | 5. DATE TAKEN (Day, month, year) <u>AUG-SEPT 1973</u> | 6. CORE LENGTH (cm) <u>99.1</u> |
| 3. LONGITUDE <u>117° 07' W</u> | 6. WATER DEPTH (m) | 9. CORER PENETRATION (cm) |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD-7 | |
| 11. WET UNIT WEIGHT (g/cm ³) | * | |
| 12. SPECIFIC GRAVITY OF SOLIDS | <u>2.74</u> | |
| 13. WATER CONTENT (% dry weight) | <u>48.04</u> | |
| 14. VOID RATIO | * | |
| 15. SATURATED VOID RATIO | * | |
| 16. POROSITY (%) | * | |
| 17. LIQUID LIMIT | <u>56.8</u> | |
| 18. PLASTIC LIMIT | | |
| 19. PLASTICITY INDEX | | |
| 20. LIQUIDITY INDEX | | |
| 21. COMPRESSION INDEX FROM LL | | |
| 22. COMPRESSIVE STRENGTH NATURAL REMOULD (g/cm ²) | | |
| 23. COHESION NATURAL REMOULD (g/cm ²) | | |
| 24. SENSITIVITY | | |
| 25. ANGLE OF INTERNAL FRICTION (°) | | |
| 26. ACTIVITY | | |
| 27. MODULUS OF ELASTICITY | | |
| 28. SLUMP (in) | | |
| 29. REMARKS * CALCULATED ASSUMING 100% SATURATION. | | |

ITEM 459

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

120-27

ANALYZED BY C. M. RossDATE 5 NOV 1973

| 1. CRUISE NO. | 2. LATITUDE | 3. LONGITUDE | 4. SAMPLE NO. | 5. DATE TAKEN (day, month, year) | 6. WATER DEPTH (m) | 7. TYPE CORER | 8. CORE LENGTH (cm) | 9. CORER PENETRATION (cm) |
|--|---------------------------------------|----------------------|----------------------|----------------------------------|--------------------|---------------|---------------------|---------------------------|
| SAN DIEGO II | 32° 40' N | 117° 07' W | " | " | " | AUG-SEPT 1973 | 208.3 | |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD8-1 | SD8-2 | | | | | | |
| 11. WET UNIT WEIGHT (g/cm^3) | * | 2.16 | 1.72 | | | | | |
| 12. SPECIFIC GRAVITY OF SOLIDS | | 2.71 | 2.69 | | | | | |
| 13. WATER CONTENT (% dry weight) | | 17.35 | 49.81 | | | | | |
| 14. VOID RATIO | * | 0.470 | 1.341 | | | | | |
| 15. SATURATED VOID RATIO | * | 0.470 | 1.341 | | | | | |
| 16. POROSITY (%) | * | 32.0 | 57.3 | | | | | |
| 17. LIQUID LIMIT | | | | | | | | |
| 18. PLASTIC LIMIT | | | | | | | | |
| 19. PLASTICITY INDEX | | | | | | | | |
| 20. LIQUIDITY INDEX | | | | | | | | |
| 21. COMPRESSION INDEX FROM LL | | | | | | | | |
| 22. COMPRESSIVE STRENGTH NATURAL | (kg/cm^2) | REMOULD | (kg/cm^2) | | | | | |
| 23. COHESION | NATURAL | (kg/cm^2) | REMOULD | (kg/cm^2) | | | | |
| 24. SENSITIVITY | | | | | | | | |
| 25. ANGLE OF INTERNAL FRICTION (\circ) | | | | | | | | |
| 26. ACTIVITY | | | | | | | | |
| 27. MODULUS OF ELASTICITY | | | | | | | | |
| 28. SLUMP (%) | | | | | | | | |
| 29. REMARKS * | CALCULATED ASSUMING 100 % SATURATION. | | | | | | | |

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CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

ANALYZED BY C.M. RossDATE 5 NOV 1973120-27

| 1. CRUISE NO. | 2. LATITUDE | | 3. LONGITUDE | | 4. SAMPLE NO. | | 5. DATE TAKEN (Day, month, year) | | 6. WATER DEPTH (m) | | 7. TYPE CORER | | 8. CORE LENGTH (cm) | | 9. CORER PENETRATION (cm) | | 10. SUBSAMPLE DEPTH IN CORE (cm) | | 11. WET UNIT WEIGHT (g/cm³) | | 12. SPECIFIC GRAVITY OF SOLIDS | | 13. WATER CONTENT (% dry weight) | | 14. VOID RATIO | | 15. SATURATED VOID RATIO | | 16. POROSITY (%) | | 17. LIQUID LIMIT | | 18. PLASTIC LIMIT | | 19. PLASTICITY INDEX | | 20. LIQUIDITY INDEX | | 21. COMPRESSION INDEX FROM LL | | 22. COMPRESSIVE STRENGTH NATURAL (g/cm²) | | 23. COHESION NATURAL (g/cm²) | | 24. SENSITIVITY | | 25. ANGLE OF INTERNAL FRICTION (°) | | 26. ACTIVITY | | 27. MODULUS OF ELASTICITY | | 28. SLUMP (%) | | 29. REMARKS * CALCULATED ASSUMING 100 % SATURATION. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---------------------|--|---------------|--|----------------------------------|--|----------------------------------|--|------------------------|--|---------------------|--|---------------------|--|---------------------------|--|----------------------------------|--|-----------------------------|--|--------------------------------|--|----------------------------------|--|----------------------------------|--|-----------------------------|--|-----------------------------|--|--------------------------------|--|--------------------------------|--|----------------------------------|--|----------------------------------|--|-------------------------------|--|--|--|------------------------------|--|--------------------------|--|------------------------------------|--|------------------|--|---------------------------|--|-------------------|--|---|--|----------------------|--|-------------------------------|--|--|--|--|--|------------------------------|--|------------------------------|--|-----------------|--|------------------------------------|--|------------------------------------|--|---------------------------|--|---------------------------|--|---|--|---|--|
| 1. CRUISE NO. | <u>SAN DIEGO II</u> | | 4. SAMPLE NO. | | <u>BS-9</u> | | 5. DATE TAKEN (Day, month, year) | | <u>AUG - SEPT 1973</u> | | 6. WATER DEPTH (m) | | A. CORE LENGTH (cm) | | <u>94.0</u> | | 7. TYPE CORER | | DIVER | | 8. CORE LENGTH (cm) | | 9. CORER PENETRATION (cm) | | 10. SUBSAMPLE DEPTH IN CORE (cm) | | SD9 | | 11. WET UNIT WEIGHT (g/cm³) | | * 1.99 | | 12. SPECIFIC GRAVITY OF SOLIDS | | 2.70 | | 13. WATER CONTENT (% dry weight) | | 26.48 | | 14. VOID RATIO | | * 0.74 | | 15. SATURATED VOID RATIO | | * 0.716 | | 16. POROSITY (%) | | * 41.7 | | 17. LIQUID LIMIT | | 18. PLASTIC LIMIT | | 19. PLASTICITY INDEX | | 20. LIQUIDITY INDEX | | 21. COMPRESSION INDEX FROM LL | | 22. COMPRESSIVE STRENGTH NATURAL (g/cm²) | | REMOULD (g/cm²) | | 23. COHESION NATURAL (g/cm²) | | REMOULD (g/cm²) | | 24. SENSITIVITY | | 25. ANGLE OF INTERNAL FRICTION (°) | | 26. ACTIVITY | | 27. MODULUS OF ELASTICITY | | 28. SLUMP (%) | | 29. REMARKS * CALCULATED ASSUMING 100 % SATURATION. | |
| 2. LATITUDE | 32 ° 40' | | 30 N | | 5. DATE TAKEN (Day, month, year) | | AUG - SEPT 1973 | | 6. WATER DEPTH (m) | | A. CORE LENGTH (cm) | | 94.0 | | 7. TYPE CORER | | DIVER | | 8. CORE LENGTH (cm) | | 9. CORER PENETRATION (cm) | | 10. SUBSAMPLE DEPTH IN CORE (cm) | | SD9 | | 11. WET UNIT WEIGHT (g/cm³) | | * 1.99 | | 12. SPECIFIC GRAVITY OF SOLIDS | | 2.70 | | 13. WATER CONTENT (% dry weight) | | 26.48 | | 14. VOID RATIO | | * 0.74 | | 15. SATURATED VOID RATIO | | * 0.716 | | 16. POROSITY (%) | | * 41.7 | | 17. LIQUID LIMIT | | 18. PLASTIC LIMIT | | 19. PLASTICITY INDEX | | 20. LIQUIDITY INDEX | | 21. COMPRESSION INDEX FROM LL | | 22. COMPRESSIVE STRENGTH NATURAL (g/cm²) | | REMOULD (g/cm²) | | 23. COHESION NATURAL (g/cm²) | | REMOULD (g/cm²) | | 24. SENSITIVITY | | 25. ANGLE OF INTERNAL FRICTION (°) | | 26. ACTIVITY | | 27. MODULUS OF ELASTICITY | | 28. SLUMP (%) | | 29. REMARKS * CALCULATED ASSUMING 100 % SATURATION. | | | |
| 3. LONGITUDE | 117 ° 7' | | W | | 5. DATE TAKEN (Day, month, year) | | AUG - SEPT 1973 | | 6. WATER DEPTH (m) | | A. CORE LENGTH (cm) | | 94.0 | | 7. TYPE CORER | | DIVER | | 8. CORE LENGTH (cm) | | 9. CORER PENETRATION (cm) | | 10. SUBSAMPLE DEPTH IN CORE (cm) | | SD9 | | 11. WET UNIT WEIGHT (g/cm³) | | * 1.99 | | 12. SPECIFIC GRAVITY OF SOLIDS | | 2.70 | | 13. WATER CONTENT (% dry weight) | | 26.48 | | 14. VOID RATIO | | * 0.74 | | 15. SATURATED VOID RATIO | | * 0.716 | | 16. POROSITY (%) | | * 41.7 | | 17. LIQUID LIMIT | | 18. PLASTIC LIMIT | | 19. PLASTICITY INDEX | | 20. LIQUIDITY INDEX | | 21. COMPRESSION INDEX FROM LL | | 22. COMPRESSIVE STRENGTH NATURAL (g/cm²) | | REMOULD (g/cm²) | | 23. COHESION NATURAL (g/cm²) | | REMOULD (g/cm²) | | 24. SENSITIVITY | | 25. ANGLE OF INTERNAL FRICTION (°) | | 26. ACTIVITY | | 27. MODULUS OF ELASTICITY | | 28. SLUMP (%) | | 29. REMARKS * CALCULATED ASSUMING 100 % SATURATION. | | | |

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

/20-27

ANALYZED BY C.M. RossDATE 5 NOV 1973

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| 1. CRUISE NO. SAN DIEGO II | 4. SAMPLE NO. BS 10 | 7. TYPE CORER DIVER |
| 2. LATITUDE 32° 40' N | 5. DATE TAKEN (Day, month, year) AUG-SEPT 1973 | 8. CORE LENGTH (cm) 99.1 |
| 3. LONGITUDE 117° 0' W | 6. WATER DEPTH (m) | 9. CORER PENETRATION (cm) |
| 10. SUBSAMPLE DEPTH IN CORE (cm) | SD 10 | |
| 11. WET UNIT WEIGHT (g/cm³) | * | |
| 12. SPECIFIC GRAVITY OF SOLIDS | 2.68 | |
| 13. WATER CONTENT (% dry weight) | 29.15 | |
| 14. VOID RATIO | * | |
| 15. SATURATED VOID RATIO | * | |
| 16. POROSITY (%) | * | |
| 17. LIQUID LIMIT | 43.9 | |
| 18. PLASTIC LIMIT | | |
| 19. PLASTICITY INDEX | | |
| 20. LIQUIDITY INDEX | | |
| 21. COMPRESSION INDEX FROM LL | | |
| 22. COMPRESSIVE STRENGTH NATURAL (g/cm²) | | |
| | REMOULD (g/cm²) | |
| 23. COHESION NATURAL (g/cm²) | | |
| | REMOULD (g/cm²) | |
| 24. SENSITIVITY | | |
| 25. ANGLE OF INTERNAL FRICTION (°) | | |
| 26. ACTIVITY | | |
| 27. MODULUS OF ELASTICITY | | |
| 28. SLUMP (%) | | |
| 29. REMARKS * CALCULATED ASSUMING 100% SATURATION. | | |

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